



REGION 6 REGIONAL RESPONSE TEAM (RRT) SEMI - ANNUAL REPORT

Period: January, 2001 – July, 2001

Bioremediation Position Paper

The Region 6 RRT Position Paper on the use of bioremediation products, which was coordinated with the RRT S & T Committee, was ratified by the RRT membership. The position paper was the result of extensive efforts by the RRT S & T Committee in conjunction with representatives from the Industry Work Group (IWG).

The RRT S&T Committee working with representatives from the Industry Work Group are working to finalize a Region 6 protocol on bioremediation. The final protocol on bioremediation will be finalized and voted on by the RRT membership in 2002.

Dispersant Protocol

The Region 6 RRT Dispersant Protocol was completed and ratified by the RRT membership. The Protocol was the result of thorough efforts by the RRT Committees and Industry personnel.

E-Plan

The work on the E-Plan (Electronic Response System) resulted in a "proof of concept" which was presented to the RRT, emergency response, first response, and industry personnel.

A 12 question questionnaire was presented and the results were as follows: 52 people completed the evaluation form and 47 were determined to be true response persons. 86% responded "positive", 12% responded "neutral" and 2 % responded "negative". The "proof of concept" was deemed to be very successful.

SONS Exercise

The SONS exercise, which is planned for April 2002, prompted several planning meetings to plan and lay out the parameters of the full scale exercise and the attendant exercises that will train the involved personnel. RRT members, FOSC's and industry are heavily involved in the planning exercise with excellent cooperation from all.

Tropical Storm Allison

On June 9th, 2001, Tropical Storm Allison began dumping up to 36 inches of rain in the Houston area within a 24 hour period. All Houston area network TV stations broadcasted news 24 hours per day, commercial free, for 3 days. Before it was over, 26 Texas Counties were declared disaster areas.

The US Coast Guard at MSO Houston set up a command post to deal with not only vessel safety, but also the numerous environmental issues associated with the storm. Among the agencies that participated in the response at MSO Houston were the US Coast Guard, US Environmental Protection Agency, Texas Natural Resource Conservation Commission, Texas General Land Office and numerous emergency response contractors.

The main duties of this large unified command were to maintain safety of vessels, oil spill response, oiled debris removal, household hazardous waste recovery, hazardous material control and the response to the 526 orphan containers floating in the flood waters. The cleanup was a resounding success, with each agency playing an integral role in the response.

Lessons Learned

Clean up of the MV Genmar Hector

On 16 March 2001, the MV Genmar Hector was engaged in transferring Kuwaiti light crude when a weather related aberration occurred (70 knot winds) breaking the transfer boom and connection spilling about 1000 barrels into the Houston Ship Channel.

TGLO and NOAA completed the SCAT survey of the Gulf Coast Waste Water Containment Canal up to HWY. 146 by boat and discovered no pooled pockets of oil. The small pockets of oil on the riprap were identified by TGLO and cleanup crews were assigned to manually remove the oil. Cleanup recommendations and endpoints were developed and submitted to the operations section.

A surface-washing agent was approved for use by the RRT. PES-51 was chosen as the surface-washing agent because it is listed on the NCP Product Schedule and it did not have a soak time. Washing agents requiring longer soak times may have had greater runoff problems on the vertical surfaces of the vessel.

Due to the inaccessibility of the high pressure washing equipment to the starboard side of the Hudson Spirit, PES-51 was used to clean the "bathtub ring" around the vessel at the waterline. First a test was done without PES-51. Very little oil was removed and parts of the sorbent pad clung to the side of the vessel.

With PES-51 the oil was easily removed and the sorbent pad did not fray and cling to the vessel. To minimize oil and surface washing agent in the water a sorbent pad was sprayed with PES-51 and then used to wipe down the vessel followed by a clean pad.

Saturday, 17 March 2001

By morning all floating oil was recovered. Operations focused on decon of equipment and cleaning the MV Genmar Hector. A test of high pressure/cold water, high pressure/hot water, and high pressure/hot water with PES-51 was conducted. (A test with high pressure/cold water with PES-51 was not conducted due to the fact that the hot water equipment was on scene.

Present for the test were USCG, NOAA, RP, the Captain and QI of the Genmar Hector. The high pressure/cold water was not effective, no oil was removed. The high pressure/hot water was minimally effective, a stain still remained, but there was evidence of sheening in the water. The high pressure/hot water with PES-51 was very effective, no stain was left and black oil was observed running down the side of the vessel.

Mosquito Bay Oil Spill: Report to RRT on In-Situ Burns

On 11 April 2001, the Unified Command (UC) requested RRT approval to conduct a series of in-situ burns at a spill site in a remote coastal marsh. The location of the spill was approximately 29 16.5' N Lat., 091 107 W Long. and adjacent. 1Q. Mosquito Bay, Louisiana. The area of the spill is extremely remote and can only be reached by boat or helicopter.

Original estimates of the spill size were extremely inaccurate as much of the affected area was within the heavy marsh and could not be accurately estimated from the air. Once the marsh had been ground-truthed, a more accurate estimate of 1000 bbl of condensate oil (crude oil co-produced in a primarily gas well) had been released. Marsh impacted by observed oil was estimated at 37 acres.

The leak is suspected to have come from a 20 inch pipeline which carried natural gas and condensate. This pipeline carried gas and condensate that had been siphoned off of several producing gas wells, which resulted in a very large volume of condensate flowing through the line. The cause of the leak is still under investigation.

Because the spill was largely contained in low areas of interior marsh, conventional oil recovery techniques and mitigation would cause unacceptable physical marsh impact; therefore, in-situ burning was considered the most environmentally friendly approach to minimize impact from the oil spill.

The weathered condensate oil has many of the characteristics of diesel fuel. Since the spilled oil was relatively transparent, the depth of oil on water within the marsh could be delineated using a shovel. Again, such observations would not be apparent from aerial surveys. After presenting the plan to the RRT on 11 April 2001 and an interactive conference call, the RRT granted approval for the use of in-situ burning.

The approved plan included an initial "test" burn in Zone 1 to be followed by a second burn in the most heavily impacted areas if the UC deemed the burns effective in reducing environmental impact from the spill. Criteria to evaluate the first burn was defined as follows:

1) The oil should burn readily and efficiently. 2) Unoiled areas should not burn beyond our control efforts. 3) There should be no evidence of burn residue or soil impacts that would cause more impacts than the oil alone. 4) The plume should not pose risks to downwind resources. If the initial burn was deemed successful by the UC, Zones 4, 3, and parts of Zone 2 would be burned.

It was expected that the burn would primarily follow the pools of surface oil, but some adjacent drier areas were expected to be burned as well. It was the consensus of the on-scene responders that burning was the proper course of action.

The landowner's representative, representing the Arch Diocese of New Orleans as the landowner, said he had no concerns about the burn progressing into adjacent areas since the marsh was routinely burned for management purposes.

Beginning at 0745 hrs on 12 April, preburn surveys which included sampling and photoquad documentation were conducted in Zone 1. The time of the survey was about three hours before high tide. Oil thickness was 0.5 cm with a 0.1 cm water layer between the oil and the marsh surface was observed. The water level was expected to increase with the rising tide.

Preburn samples and photoquads were collected. The Gulf Strike Team "SMART" team was set up to conduct air sampling. Members of Williams Fire Services were contracted to provide fire protection to the nearby "Williams Energy" facility where the pipeline originated; the facility was located just offshore from the oiled area.

Just before 0900 hrs, Zone 1 was ignited using a flare gun. The fire was slow to start, but eventually the pool of oil was fully evolved in flames. Although a fire break was constructed using an airboat prior to the burn, the fire progressed downwind and outside of the planned burn area. An estimated 40 acres of marsh was burned.

Further burning was not conducted because the wind speed had increased to 15-20 knots and all agreed that control of the burn would not be possible. Airboats were used to control the edges of the fire in Zone 1 and the fire eventually burned out at the water's edge.

Airboats were also used to extinguish the burn where it was approaching Zone 2 to insure that the fire did not burn into this area overnight.

While more marsh burned than originally predicted in the test burn area and some birds (all of which were thought to be rails) were killed, the LIC felt that burning was still the preferred option especially if the winds diminished. The bird mortality observations were not quantified as that would require additional marsh impact, as observers would trample the now exposed marsh flats causing additional environmental damage.

Several calls to resource trustees were made to confirm this opinion and it was concluded that some birds are often killed during normal management prescribed burns. The land manager restated that the entire island could be burned without his objection. However, the UC still desired to minimize any collateral burns to the unoiled marsh.

During the evening debrief and planning meeting, the tradeoffs between burning at first light when the wind speeds would be lowest and burning at mid-tide when water levels in the marsh would be higher (predicted to be about 1100 on Friday) were discussed. It was decided that the burn in the oil area would begin around 0900 hrs, as a compromise between the higher winds and higher tides.

NIST and USFWS were contacted to discuss strategies to minimize collateral burn impact. During the second burn, a back burn strategy was attempted to minimize collateral burn damage. It was understood from the beginning that in-situ burning of oiled marshes is a developing science; new lessons were being learned during this response which will be used for future responses.

After the initial burn, we were comforted by the fact that the spill was on an island which provided it's own measure of burn control should the winds again drive the oil past the targeted burn zones.

On Good Friday, 13 April, the winds had diminished to less than 5 knots and a second in-situ burn was conducted at the pipeline leak and adjacent contaminated marsh. Back-burn (down-wind) fires were set north of the target burn area just before 0900 hrs, but these initial fires exhibited very slow progress back toward the main oiled zone.

When the winds began to freshen to between 5 and 10 knots, pools of oil on the up-wind side, near the pipeline leak (this area is called "ground zero" by the responders and is the most contaminated) were ignited using a flare gun and road flares. The oiled areas readily ignited. The winds never exceeded the 15 knots window authorized by the RRT and averaged less than 10 knots the entire day.

Some collateral burn was observed, but no dead birds were observed due to collateral damage. The combination of back burns and reduced wind speed allowed better wildlife escape. A small oiled area outside of the burn area in Zone 3 was identified. The on-scene command elected not to burn this area since the expected collateral burn would be great relative to the small amount of oil removed.

The NOAA SSC supported this decision. Some 50 acres of marsh was burned on 13 April; most of this area was within the target burn zone, although once again some collateral burn occurred. Surveys at the end of the burn estimated that 90-95% of the recoverable surface oil had burned off.

Oil was still observed subsurface in the thousands of fiddler crab burrows (some of which were burning like small lamps during the post-burn survey). A pit dug at the site where the repair was to be made immediately re-ignited. Maintenance plans to collect any released oil caused by subsequent rains were developed and implemented.

The in-situ burns were considered successful. Given that any response in a sensitive marsh will involve negative environmental trade-offs, the use of *in-situ* burning was thought to have the least environmental impact and the highest removal efficiency for surface oil contamination.

Relative to any additional emergency mitigation, the UC with endorsement from the NOAA SSC has taken a "wait and see approach." If the marsh grasses begin to recover in the heavily impacted area, the most environmentally friendly response may be natural recovery of residual contamination. Any additional transport into the marsh will cause subsequent physical environmental damage; the type of damage that was minimized by using *in-situ* burning.

Within three weeks, new grasses were sprouting and it is anticipated that within the year the area will be fully recovered.

The results of this *in-situ* response is very informative and helpful to the RRT Response Committee and the industry personnel who are working together to prepare an "in-shore and near-shore" *in-situ* burn protocol for the Region 6 RRT.